Rorisite CaFCl

Crystal Data: Tetragonal. *Point Group:* $4/m\ 2/m\ 2/m$. Crystals rounded, tabular, flattened on {001}, showing {111}, {110}, rarely {100}, to 1 mm.

Physical Properties: *Cleavage:* {110}, perfect; {001}, excellent. *Fracture:* Conchoidal. *Tenacity:* Brittle, thin fragments slightly elastic. Hardness = 2 D(meas.) = 2.78(1) D(calc.) = 2.94 Hygroscopic, soluble in H_2O, altering to $CaCl_2$ and CaF_2; weak violet fluorescence under LW UV.

Optical Properties: Transparent, becoming turbid on exposure to moist air. *Color:* Colorless. *Streak:* White. *Luster:* Vitreous.
Optical Class: Uniaxial (–). $\omega = 1.668(2)$ $\epsilon = 1.635(2)$

Cell Data: *Space Group:* $[P4/nmm]$ (by analogy to matlockite). $a = 3.890(1)$ $c = 6.810(1)$ Z = 2

X-ray Powder Pattern: Kopeysk, Russia.
2.557 (100), 6.81 (45), 2.267 (35), 2.138 (32), 1.560 (32), 3.396 (30), 1.363 (25)

Chemistry:

	(1)	(2)
Mg	3.63	
Ca	38.94	42.40
F	23.29	20.10
Cl	34.24	37.50
Total	100.10	100.00

(1) Kopeysk, Russia; corresponds to $(Ca_{0.89}Mg_{0.13})_{\Sigma=1.02}F_{1.00}(Cl_{0.88}F_{0.12})_{\Sigma=1.00}$. (2) CaFCl.

Occurrence: Within carbonized wood in burnt coal dumps.

Association: Fluorite, periclase, troilite.

Distribution: From Kopeysk, Chelyabinsk coal basin, Southern Ural Mountains, Russia.

Name: From the Latin for *dew*, in allusion to the transparent drops that cover the mineral in moist air.

Type Material: Mining Institute, St. Petersburg, 2073; Il'menskii Preserve Museum, Miass, 5880; A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, r460/1.

References: (1) Chesnokov, B.V., T.P. Nishanbaev, and L.F. Bazhenova (1990) Rorisite CaFCl – a new mineral. Zap. Vses. Mineral. Obshch., 119(3), 73–76 (in Russian). (2) (1991) Amer. Mineral., 76, 1731 (abs. ref. 1).